

## ABSTRACT:

The invention relates to a magnetic resonance imaging (MRI) apparatus (1) comprising a gradient coil assembly (3, 4, 5) for generating gradient magnetic fields in an imaging volume, the gradient coil assembly (3, 4, 5) comprising at least three gradient coils (6) for generating three different gradient magnetic fields. In order to compensate self-induced eddy currents in the gradient coils it is proposed according to the invention to provide a conductive element (71, 72, 73) in close proximity to at least one of the gradient coils (6) in order to compensate self-induced eddy currents in the gradient coil assembly (3, 4, 5). It is thus achieved that undesirable high-order behaviour of the gradient coils is suppressed and that conductive elements (71, 72, 73) are provided in the gradient coil assembly (3, 4, 5) such that undesirable high-order behavior of the gradient coils (3, 4, 5) is suppressed and the nature of the short term self-eddy field becomes similar to that of the gradient coils (3, 4, 5).

Fig. 4